

RESPONSE

Serial Number: 10/698,833

Filing Date: 10/31/2003

Title: Agricultural Utility Vehicle and Method of Controlling Same

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CLAIMS

Please substitute the claim set below for the currently pending claim set. All intentional deletions are either shown within double brackets or shown as struck-through text. All intentional insertions are shown as underscored text. To the extent the claims listed below make other (i.e. unmarked) changes to the claims, such changes are unintentional and are made in error.

1. (original) An agricultural utility vehicle comprising a computer to execute the steps comprising:
 - storing data representing steering direction, position and speed of the agricultural vehicle;
 - recognizing repeated drive events wherein each drive event comprises a plurality of serially performed functions including changing steering direction, changing speed and changing lift position of a hitch of the agricultural utility vehicle;
 - displaying each function on a screen and enabling a user to skip functions and execute subsequent functions;
 - executing the functions to automatically control the vehicle on private areas, which are determined in accordance with means for sensing position;
 - blocking execution of the functions in public areas;
 - deactivating control when obstacles are encountered, wherein the obstacles are recognized by way of signals received from cameras mounted on the agricultural vehicle; and
 - periodically prompting a user for input.

2. (currently amended) A method of controlling an agricultural utility vehicle including means for determining the direction of travel, the travelling speed, the engine speed, the gear ratio, the speed of a drive wheel, the position of a coupled load or a coupled mounted implement, total width [[,]] and treatment width of the coupled load, at least one automatic speed controller, a speed range changing switch, the method comprising the steps of:

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automatically controlling the direction of travel, the travelling speed, operation of the coupled load, ~~[[the]]~~ a lifting gear position~~[[,]]~~ ;

storing data from the means for determining;

recognizing repeated drive management events, wherein each drive management event includes a plurality of functions;

displaying the functions as a whole or in at least one of route blocks and ~~[[/or in]]~~ timed individual steps and permitting an operator to skip at least one of the plurality of functions;

automatically blocking execution of the functions in ~~[[the]]~~ a public traffic space; deactivating automatically execution of the functions when obstacles are encountered; and

monitoring the operator's attention and stopping the vehicle if the operator does not react.

3. (currently amended) A method of controlling an agricultural vehicle according to claim 2, wherein the means for determining includes an on-board computer including an exchangeable data medium, a control panel, a display screen, and at least one of a radio interface, a satellite-supported navigation system, an ultrasonic device, a radar device and sensors for recording and recognition of at least one of fixed and~~[[/or]]~~ movable obstacles, and the step of storing data includes storing data from the at least one of the satellite-supported navigation system, the ultrasonic device~~[[,]]~~ a radar device and sensors for recording and recognition of at least one of fixed and~~[[/or]]~~ movable obstacles in the exchangeable data medium.

4. (currently amended) A method of controlling an agricultural vehicle according to claim 2, wherein the agricultural vehicle includes sensors for recording and recognition of at least one of fixed and~~[[/or]]~~ movable obstacles, and the step of deactivating automatically ~~[[the]]~~ a drive

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management system when obstacles are encountered includes sensing the obstacles with the sensors, displaying the presence of the obstacles, and deactivating immediately or after a time delay after the presence of the obstacles are displayed.

5. (currently amended) A method of controlling an agricultural vehicle according to claim 2, wherein ~~[[the]]~~ a drive management system can be deactivated via an emergency push-button.

6. (currently amended) A method of controlling an agricultural utility vehicle according to claim 3, wherein,

a) on a computer independent of the utility vehicle, a simulation takes place, ~~[[the]]~~ a result of the simulation flows into a program and this program is entered into the on-board computer of the agricultural utility vehicle,

b) a reconciliation of the data from the programmed version with the current data during at least one of the first and ~~[[/or]]~~ the following run and turning maneuver takes place, the data is corrected if necessary and the deviations and alterations are displayed,

c) ~~[[the]]~~ amended updated data is input via the radio interface into the computer which is independent of the utility vehicle, at the same time the simulation is run again,

d) and by means of constant data exchange the program is automatically optimized.

7. (currently amended) A method of controlling an agricultural utility vehicle in accordance with claim 6, wherein,

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a) in the computer independent of the utility vehicle a virtual expanse of ~~[[the]]~~ a non-public, agriculturally exploited area to be treated is laid out,

b) and the boundaries of this virtual expanse are variably changeable depending upon the agricultural utility vehicle employed and at least one of its coupled load and ~~[[/or]]~~ mounted implement.

8. (currently amended) A method of controlling an agricultural utility vehicle in accordance with claim 7, wherein

a) in at least one of the computer independent of the utility vehicle and ~~[[/or]]~~ the on-board computer a virtual grid is laid down for the relevant, non-public, agriculturally exploited area,

b) at least one of the grid lines and ~~[[/or]]~~ intersections of the grid serve as the basis for controlling the agricultural utility vehicle depending upon the vehicle employed and at least one of its coupled load and ~~[[/or]]~~ mounted implement,

c) the outermost lines are utilized simultaneously as boundary lines, which the vehicle may not drive over in automatic operation,

d) while on crossing over at least one of the grid lines and ~~[[/or]]~~ intersections of the grid at least one of appropriate functions and ~~[[/or]]~~ actions of the agricultural utility vehicle including the coupled load are triggered.

9. (currently amended) A method of controlling an agricultural utility vehicle in accordance with claim 3, wherein,

a) recognition of obstacles and ~~[[the]]~~ a field end is effected with a camera system,

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- b) in which at least one camera delivers comparison signals and these are combined with at least one of the signals from another camera and [[/or]] signals from other sensors and the information gained from this is stored and evaluated in a separate microcomputer system, and
- c) the evaluated information is entered into the on-board computer, which takes account of the immovable obstacles,
- d) for moving obstacles that are situated within a specified hazard area, warning the operator that the functions are deactivated either simultaneously [[and/]] or after a time delay.